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Exhibit 14

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Page 1
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    UNITED STATES DISTRICT COURT
    NORTHERN DISTRICT OF CALIFORNIA
    SAN FRANCISCO DIVISION
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    ----x
3
    IN RE GOOGLE PLAY STORE
4
    ANTITRUST LITIGATION
    Case No. 3:21-md-02981-JD
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6
    THIS DOCUMENT RELATES TO:
7
    Epic Games Inc. v. Google LLC, et al.,
    Case No. 3:20-cv-05671-JD
8
    In Re Google Play Consumer
9
    Antitrust Litigation
    Case No. 3:20-cv-05671-JD
10
    In Re Google Play Developer
11
    Antitrust Litigation,
    Case No: 3:20-cv-05792-JD
12
    State of Utah, et al., v.
13
    Google LLC, et al.,
    Case No: 3:21-cv-05227-JD
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16
              VIDEOTAPE DEPOSITION
17
                HAL SINGER, PH.D.
18
             Thursday, May 12, 2022
19
                 9:07 a.m. (EST)
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    Reported by:
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    Ryan K. Black, RPR, CLR, Notary Public
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- being reflected in the prices of apps in the transaction data.
- Q. Right. And your opinion is that Google's service fees, to the extent that they are supercompetitive, is equivalent to an increase in the developer's marginal cost.
 - A. It can be understood that way, yes.
- Q. Right. And in your report, you've modeled the proper economic way to calculate how a profit-maximizing developer would set prices based on marginal costs.
 - A. I have. And --
- Q. Right.

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- A. -- and, as you know, it depends on the -- the nature of the demand and the demand specification that you assume, right? Each demand specification you assume is going to apply at different pass-through rates.
- Q. Right. So could you go to Page 104 of your report, your opening report, please?
 - A. Sure.
- Q. And you'll see this is a continuation of the Paragraph 225 from the previous page.
- And you've got a formula there that has
 "P minus C star divided by P equals one divided

Page 106 1 by E sub D." 2 Do you see that? 3 Α. Yes. That's the classic Lerner markup. Right. So that's -- that's the proper 4 Q. 5 economic model for how a profit maximizing 6 developer would set prices based on marginal 7 costs, right? 8 Α. That model describes the markup over 9 marginal cost as the function of the elasticity of demand faced by the developer. 10 11 Right. And -- and this model on Page 0. 12 104 of your opening report, that -- that's --13 Α. So --14 -- the correct economic mod -- economic 15 way to model how the change in marginal costs 16 will affect the price that the developer charges. 17 It's the -- it's the way to think Α. 18 about it at -- at a very, very high level of 19 abstraction. But, as you know, to actually 20 estimate the pass-through rate here, I have to 21 make an assumption about the demands curve and --22 and -- and the precise nature of demand that a --23 the developer faces, right? 24 Once you --Understood. 25 Q.

- A. -- make a -- once you make that decision, you get these pass-through rules, right? And the pass-through rules -- whether you go linear or logit or -- or constant elasticity -- are going to express pass-through as a function of things that do not include the marginal cost.
- Q. Understood. But this formula on Page 104 of your report is the correct economic way to model the relationship between the developer's price and the marginal cost in general?
- A. Well, I just want to put that caveat in there. It's the -- it's the -- definitely the way to think about it and why it's in my preamble, right?

But when I go to model the precise amount of pass-through, I have to make an assumption about what kind of demand the developer faces, right? And that -- that puts me to a -- takes me to a pass-through rule that isn't necessarily going to be denominated in terms of costs.

Q. Understood. So -- but -- but this mod -- this economic model you've described in Page 104 of your report, that's generally accepted in

Page 108 1 economics. 2 Α. Yes. 3 Ο. Now, if you just look at the cost term 4 there, C star, and the -- the C star in that 5 formula that you have on Page 104 of your report is equal to C divided by one minus T, right? 6 7 Α. Correct. 8 0. And -- and in that -- in that cost term 9 I just described, T is the service fee rate? 10 Α. Correct. 11 And C is the developer's per-unit 0. marginal cost other than the service fee? 12 13 Α. Correct. Processing and the like, yes. 14 Any other --15 Q. Okay. 16 Any other types of marginal costs. Α. 17 Okay. And so one input into the Q. generally accepted economic model of how the 18 19 profit-maximizing developer would set pri --20 prices is the marginal costs other than the 21 service fee. 22 Α. For short-run profit maximization, the 23 answer is, yes, that this model, at this high 24 level of ab -- of abstraction, is a function of 25 the marginal cost.

Q. Right. And in terms of how the price is a function of mar -- of -- of -- of marginal cost, the -- the -- the formula you've got here on Page 104, in that formula, the effect of a change in the service fee -- let me -- let me put it differently.

The formula you've got on Page 104, the effect on prices will be -- as a result of a change in the service fee will be proportional to the marginal costs other than the service fee.

- A. In -- for short-run profit maximization, yes. For -- for long-run profit maximization, this is not -- this is not the -- the way that you'd get to the effect on price.
- Q. Okay. Now, -- so let me just ask, looking at this cost term here, C -- C star, if C in that formula, which is the marginal cost other than the service fee, if that's zero, then the service fee rate will not have any effect on the ultimate price charged according to this model, correct?
- A. Let me just say this: It -- it's -- it's never zero in the real world. But -- but if you want me to ask -- answer the hypothetical, counterfactually, if we had -- if we had a zero

marginal cost, then by this model, and this model alone, then in the short run, prices would not adjust to the take rate.

As I explain in my report, there's all sorts of reasons why we would still, even in that extreme and counterfactual assumption, would expect prices to change with the change in the take rate, including from steering, including from having to cover all costs in the long run, --

Q. Okay.

- A. -- including from sticky prices.
- Q. Okay. Now, let me just ask again, hypothetically, if that term C, which are the marginal costs other than the service fee rate in your formula on Page 104, if that term is negative, then a reduction in the service fee rate will actually lead to an increase in the price that the developer would charge.
- A. I haven't done that one yet, but I think you've got the -- the sign correct. If you multiply, in that example, 1.43 by a negative cost, I think that there -- there would be a negative relationship in the short run for this equation.

- they would land on Microsoft's productivity
 package would be higher than if they were to land
 on some obscure package within productivity apps.

 I mean, it's -- it's very intuitive. It's very
 natural.
- Q. Now, your pass-through formula is based on logit demand.
 - A. Yes.

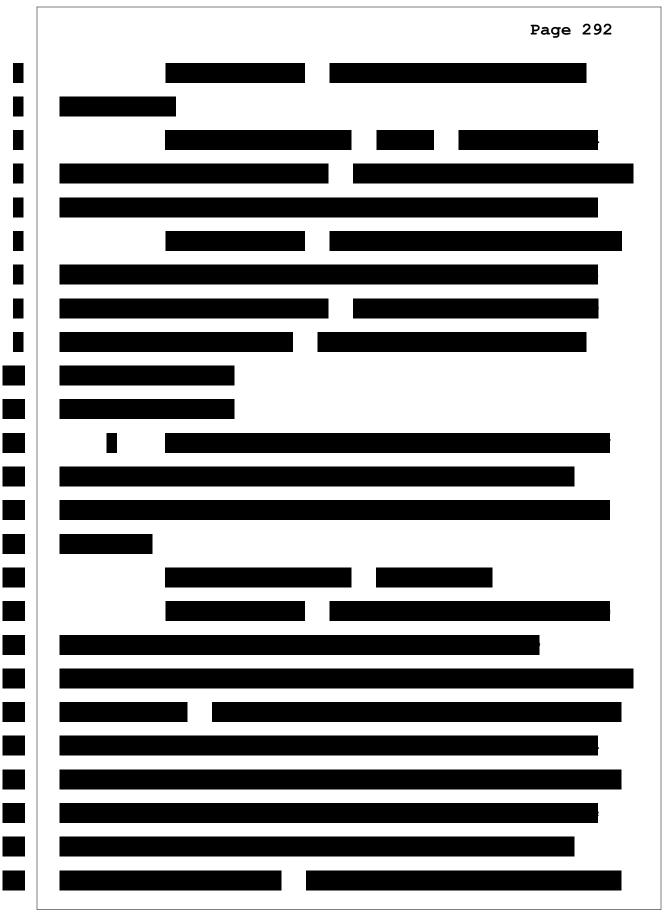
- Q. And one feature of logit demand is that all goods in the market where demand is being measured are substitutes.
- A. I think that's a general -- that is generally the case. That's fine.
- Q. Okay. Is it your opinion that all apps in each Google Play app category are substitutes?
- A. No. And that's why I invoked this concept of cluster markets. Like, you could --you could take Microsoft's Excel and Microsoft's Word and ask me if they're substitutes, and I would say at -- at that level, they're not.

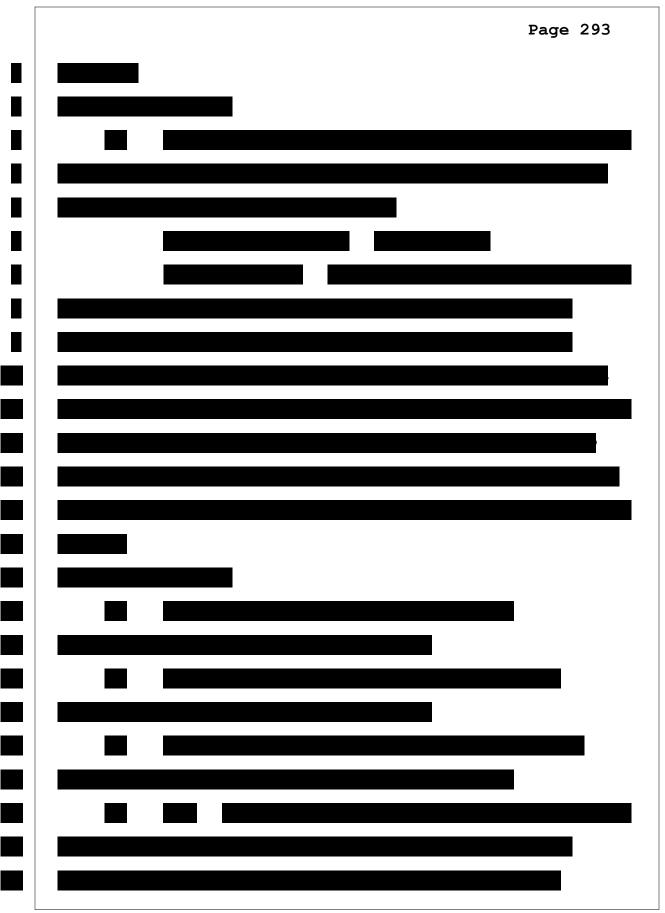
 But -- but when you think about the fact that Microsoft and Google are actually competing with a package of productivity apps, that -- that it would make sense to think of that as something more akin to a cluster market the way that we saw

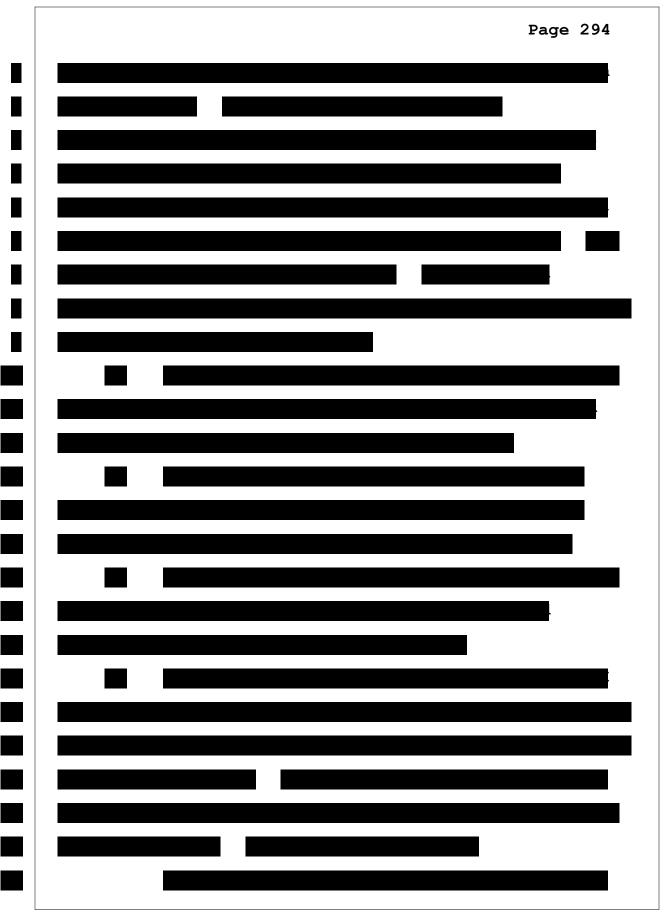
in the Staples and Office Depot case, that paper clips and a ruler aren't necessarily substitutes; but if the people generally tend to buy those things from the same place, they can belong in the same product market.

- Q. So -- but -- but it's not your opinion that all apps in each Google Play app category are substitutes.
- A. I just gave an example of Excel and Word as being more -- more of complements, right? But -- but when you think about the -- the cat -- the productivity suite that Google is offering, that -- that's clearly a substitute to what -- what Microsoft is offering in its productivity suite.
- Q. Right. So some of the apps in each Google Play category could be complements, correct?
 - A. They could be.
 - Q. And some could be substitutes.
 - A. They could be, yes.
- Q. Right. And you haven't put forth a model in your report to determine which apps in each category are complements and which are substitutes?
 - A. No. And it's not necessary to get the

Page 160 1 implied pass-through rate. 2 Q. Right. 3 Could you go to Paragraph 78 of your reply report -- well, actually, let me ask you: 4 5 Are you opining that all apps in each category 6 are part of a cluster market? 7 You -- you saw in my report. 8 saying that they don't need to necessarily be a 9 market, a relevant market, for antitrust 10 purposes, and I give you a citation for that. 11 I think that if you -- if you really 12 wanted to -- if you forced it into that box, 13 which is unnecessary and unnatural, that you 14 could -- you could get there by -- by 15 understanding the categories functioning 16 more like a cluster market. 17 Right. But you're not actually offering 0. 18 the opinion that all of the apps in each category 19 are part of a cluster market. 20 I -- I'm offering the opinion that Α. No. 21 -- that everything within the category -- that 22 the category definitions from Google define the 23 -- the contours or the arena of competition among 24 apps in that category. 25 Q. Okay. And, again, let's go to Paragraph







I think the model is. I think that at Α. the economic intuition -- well, this is the intuition that I'm drawing from the model -is that when the benefit gets so large, that is going to spur participation and usage in the system. Q. Great. Your -- your testimony here today, sir, is that you have a model in your reports that can tell the Court and the jury in this case which of the members of the putative class would have signed up for play points and who would have used them? MS. GIULIANELLI: Objection to the form. I didn't say that. THE WITNESS: I said that if the but-for subsidy were to rise to BY MR. RAPHAEL: Okay. So I want to -- I want to be 0. clear. You have -- your testimony is that in the

but-for world, every member of the putative class

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Page 298 1 would sign up for the play points program and use 2 their play points? 3 MS. GIULIANELLI: Objection. 4 THE WITNESS: I cannot -- this is the 5 first time I've been asked that question. just hearing it afresh, right? I cannot fathom 6 7 why a user would say, no, take back -- I was going to spend 8 and I realize you're trying to give me but, no, I don't 9 10 want the I want to spend the full hundred 11 myself. It would be crazy -- it would be crazy 12 to -- to do that. 13 BY MR. RAPHAEL: 14 15 16 17 18 19 20 21 22 Q. Right. And so your testimony is that if 23 Google changed the play points rate that you've 24 put in your report, that every member of the 25 putative class would have signed up for the play

Page 299 1 points program and used play points? 2 MS. GIULIANELLI: Objection. 3 THE WITNESS: I think -- I think it's a fair assumption. Like, the model certainly is 4 5 not calling on this, but I think it's a fair 6 assumption that once it goes up to that 7 -- that everyone who is making purchases would 8 -- would either redeem it or at least enroll so 9 as to be able -- to be capable of taking the 10 subsidy at -- at those terms. BY MR. RAPHAEL: 11 12 That's an assumption, though, that Q. 13 you're making. It's not what the model tells 14 you? 15 Α. Well, the model spits out, just to be 16 clear, what the average subsidy is across all 17 users. 18 Now, you -- would you agree with me that Q. 19 the counterfactual experiment lies at the heart 20 of antitrust analysis? 21 I mean, it's an important thing. Sure. 22 It's -- I don't know if it's at the heart, but 23 you need -- you need to have a counterfactual. 24 You need to model the counterfactual. 25 Q. Could you describe for me the